## REMARKS

This Amendment and request for reconsideration is in response to the Office Action dated August 12, 2002. In the Office Action, the Examiner rejected claims 1, 4-6, and 13-29 under 35 U.S.C. § 103(a) as being unpatentable over Husak, U.S. Patent No. 5,317,697 (hereinafter *Husak*). The Examiner objected to claims 30 and 31 as being dependent on a rejected base claim, but would allow these claims if rewritten in independent for including all of the limitations of the base claim and any intervening claims.

Claims 22 and 25 are amended as shown above to correct grammatical errors. Claim 11 also is presented above to verify that it is still a pending claim – the Applicant inadvertently failed to include claim 11 in the list of pending claims in the amendment and response to the March 27, 2002 office action. There was no intent to cancel claim 11. Claims 1, 4-6, and 13-31 remain pending in the application. For the reasons set forth below, the Applicant respectfully requests reconsideration and allowance of all pending claims.

Support required for claim rejection under 35 U.S.C. § 103(a)

To establish a *prima facie* case of obviousness, there must first be some suggestion or motivation to modify a reference or to combine references, and second, there must be a reasonable expectation of success. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art and not based on applicant's disclosure. M.P.E.P. § 706.02(j) from *In Re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991). Where claimed subject matter has been rejected as obvious in view of a combination of prior art references, a proper analysis under § 103 requires, *inter alia*, consideration of two factors: (1) whether the prior art would have suggested to those of ordinary skill in the art that they should make the claimed device; and (2) whether the prior art would also



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have revealed that in so making, those of ordinary skill would have a reasonable expectation of success. Both the suggestion and the reasonable expectation of success must be founded in the prior art, not in the Applicants' disclosure. *Amgen v. Chugai Pharmaceutical*, 927 F.2d 1200, 18 USPQ2d 1016 (Fed. Cir. 1991), *Fritsch v. Lin*, 21 USPQ2d 1731 (Bd. Pat. App. & Int'f 1991). An invention is non-obvious if the references fail not only to expressly disclose the claimed invention as a whole, but also to suggest to one of ordinary skill in the art modifications needed to meet all the claim limitations. *Litton Industrial Products, Inc. v. Solid State Systems Corp.*, 755 F.2d 158, 164, 225 USPQ 34, 38 (Fed. Cir. 1985).

The Examiner must present a convincing line of reasoning as to why the artisan would have found the claimed invention to be obvious in light of the teachings of the references. M.P.E.P. § 70602(j) from *Ex parte Clapp*, 227 USPQ 972, 973 (Bd. Pat. App. & Inter. 1985). Obviousness cannot be established by combining references without also providing evidence of the motivating force that would impel one skilled in the art to do what the patent applicant has done. M.P.E.P. § 2144 from *Ex parte Levengood*, 28 USPQ2d 1300, 1302 (Bd. Pat. App. & Inter. 1993) (emphasis added by M.P.E.P.) Applicant respectfully asserts that none of the prongs of the obviousness test are supported by the cited prior art.

Traversal of the rejection of claim 1, 4-6, and 25-29

As stated in the Abstract, *Husak* discloses a live insertion and removal mechanism that ensures that a sub-assembly being inserted or removed from a live electronics assembly does not disrupt system power and busses and is protected against the negative affects of current surge. In the illustrated embodiment, *Husak* discloses the use of the mechanism as applied to a VME backplane. A VME backplane, as is well-known in the art, is a standard backplane that enables various system boards (sub-assemblies) to be connected to enable communication between the system boards. The backplane includes power planes and a standard VME bus.



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In more particular, the operation of the mechanism is well-summarized in the second paragraph of the Summary of the Invention section, as follows:

> ... During insertion of an unpowered sub-assembly into a live electronic assembly, a first set of contact pins (long pins) provide a ground and preliminary voltage (PRE_VCC) to the inserted sub assembly to power live insertion request logic. A live insertion period request is issued which causes a system bus arbiter to force the system bus to an idle state after any bus operation in progress is completed. A second set of contact pins (medium pins) provide power to [a] mosfet and related passive circuitry which ramps up power to the inserted sub-assembly assuring current inrush is gradual. A third set of contact pins (short pins) bypass the mosfet circuitry and indicate when the sub-assembly is fully inserted. During removal short pins disengage first. The mosfet bypass is removed. An indication is issued that the sub-assembly is not fully seated. A live insertion period is requested. The mosfet and related passive circuitry ramp down power after the medium pins disengage until the power to the subassembly is completely removed upon full withdrawal. (Col. 2, lines 43-62, emphasis added)

Claim 1 recites (with emphases added):

1. A hot swappable blade comprising:

an ***enableable power supply*** having ***enable and power input terminals*** and a ***power output terminal, to provide power to circuitry on the blade connected to the power output terminal in response to receiving an enable signal on the enable terminal***;

a connector having first, second and third pin/sockets, the first pin/socket being longer than the second and third pin/sockets;

the first and second pins/sockets being operatively coupled to the power input terminal of the ***enableable power supply*** and the third pin/socket operatively coupled to the ***enable terminal*** of the ***enableable power supply***; and

an impedance element connected between the first pin/socket and the ***power input terminal***.

In support of the rejection of claim 1, the Examiner states

> *HUSAK* discloses a live insertion and removal mechanism having the means whereby at least one pin of a first length, at least one pin of a second length, and at least one pin of a third length each being disposed in one of said first and second connector portions to effectively disconnect selected output drivers from signal and control paths to avoid damage to



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the drivers upon insertion or removal of the sub-assembly from the live assembly (refer to abstract and to column 8, lines 55-57).

*Husak* also discloses

An enable power supply (refer to figure 2B, pre Vcc) having enable input terminals (figure 2B, V12P) and a power output terminal (figure 2B, Vcc) in response to receiving an enable signal on the enable terminal;

An impedance element connected between the first pin/socket and the power input terminal (refer to figure 2A, RES 330). (Emphases added)

With respect to the first subparagraph of claim 1, the Applicant respectfully asserts that *Husak* does not teach or suggest the use of an ***enableable power supply*** having ***enable and power input terminals*** and a ***power output terminal, to provide power to circuitry on the blade connected to the power output terminal in response to receiving an enable signal on the enable terminal***. The Examiner refers to pre Vcc in figure 2b as an enable power supply. It is not clear to Applicant whether the Examiner intends the term "enable" to refer to an enable power supply *signal*, or if he inadvertently used the term enable in place of enableable, intending to state that pre Vcc in figure 2b is an enableable power supply.

As recited in the subparagraph of claim 1, an enableable power supply is a power supply that *provides power* to circuitry on the blade in response to receiving an enable signal. Generally, a power supply is a device that receives an input power and generates an output power having an electrical characteristic, such as voltage or type (i.e., AC vs. DC) that is different than in the input power, and wherein the input and output powers are isolated. In some instances in which the power supply comprises a DC-to-DC converter, the input and output voltages may be the same (although still isolated). *Husak* clearly doesn't disclose the use of a power supply on his sub-assembly, but rather uses power provided by the backplane power planes (via his modified VME bus connector) to power circuitry on the sub-assembles, as is made clear throughout *Husak* patent. Furthermore, Hasak teaches away from using a power supply. In particular, Hasak states,



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> Features of the invention include using system voltages used on a backplane *for assembly and sub-assembly power*, to implement protection schemes as described below. This inexpensive implementation of live insertion and removal avoids complex circuitry and the consumption of valuable board space associated therewith (col. 2, lines 63-68, emphasis added).

The last sentence refers to a discussion in the Background Art section in which *Husak* discusses the drawbacks of using a DC-DC converter to effect power isolation in a live insertion environment, stating, "Such an implementation requires significant additional and costly circuitry and consumes considerable space on the sub-assemblies."

In the claims herein, the adjective "enableable" means the power supply may be enabled (i.e., to provide a power output) or disabled (i.e., to provide no power output) in response a corresponding enable or disable signal. In other words, the power supply either produces a power output or produces no power output depending on whether it receives an enable signal or not. Furthermore, when the power supply is disabled, it appears to the input power side as a very high impendence.

Details of the operation of the circuit of Figure 2B are generally discussed from col. 5, line 39 through col. 6 line 31. Figure 2B shows a PRE_VCC pin that receives a PRE_VCC voltage when the longest pin 18 is connected during insertion of the sub-assembly connector. A 12-volt signal is applied by a medium length pin at V12P as an input to an R-C time constant circuit of MOSFET Q1. The MOSFET Q1 and its associated RC passive circuitry (generally located in the lower left hand portion of Figure 2B) is used to prevent current in-rush (by bleeding it off), and is bypassed when power is supplied to the sub-assembly primary circuitry (via (primary) VCC input from short pins 22, which causes MOSFET Q1 to be turned off), and is not used to provide power to the sub-assembly circuitry (col. 5, lines 57-59). Therefore, the circuitry of Figure 2b it is not used to supply power to the sub-assembly circuit during continuous operations (i.e., to support a power supply function), but is rather used to "assure that



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current in-rush is gradual to protect the sub-assembly circuitry and minimize impact on the power system" (col. 5, lines 46-48), and is by-passed during normal (i.e., continuous) operations.

In addition, there is absolutely no power isolation provided once the short pins are connected. At this point, VCC is connected directly to the circuitry on board the sub-assembly. As a result, if a large voltage was to appear on the backplane VCC, it would be conducted to VCC on any connected sub-assemblies, possibly damaging those sub-assemblies.

It is clear from above that *Husak* does not teach or suggest all of the elements and limitations of claim 1, and does not meet all of the required obviousness test prongs discussed above. Accordingly, the rejection of claim 1 is improper in view of *Husak*, and should be removed. Furthermore, pending claims 4-6 and 25-29, each of which depend from claim 1, are patentable over the *Husak* reference for at least the same reasons.

With further respect to claim 11, *Husak* does not teach of suggest the use of a DC-to-DC converter as the power supply. As discussed above, *Husak* teaches away from the use of a power supply, and a DC-to-DC converter in particular. With further respect to claim 25, *Husak* does not teach or suggest the use of a reset pin/socket by which a reset signal may be received to reset the processor. With further respect to claim 28, *Husak* does not teach or suggest the use of a health pin/socket by which a blade can assert a health signal signifying the health or failure of the blade. With further respect to claim 29, *Husak* does not teach or suggest the use of a failure LED by which a blade can indicate failure status. *Husak* employs an LED to indicate insertion status during insertion or removal of a sub-assembly.

Traversal of the Rejection of Claims 13-24

The Examiner rejected claims 13-24 under 35 U.S.C. § 103(a) as being unpatentable over *Husak*. In support of the rejection of claims 13 and 14, the Examiner states, "Refer to column 3, lines 35-68-column 5, line 12," which generally discusses sub-assembly insertion operations. Claim 13 recites:

> 13. A system comprising:
>
> a backplane bus;
>
> a plurality of blades each having a connector to engage the backplane bus including two management blades (MBs) and a plurality of other blades (OBs);
>
> each connector having first pins/sockets of a first length, second pins/sockets of a second length and third pins/sockets of a third length; the first length being the longest length, the third pins/sockets being the shortest length and the second length being longer than the third length and shorter than the first length;
>
> the backplane bus having power lines which cooperatively engage one of the first pins/sockets and one of the third pins/sockets on each of the blades.

Clearly, *Husak* not teach or suggest the use of management blades. As discussed in the present specification, the management blades provide system management operations, including enabling the power supplies of other blades in the system. *Husak* does not disclose the use any components for system management operations. In particular, a VME backplane is a passive backplane that doesn't provide system management operations by itself. Such operations would have to be provided by a sub-assembly. There is absolutely no mention of any of the sub-assemblies providing such operations, nor is such a use known in the art. Accordingly, the rejection of claim 13 is improper and should be withdrawn. Furthermore, each of claims 14-24, which depend either directly or indirectly from claim 13, are in condition for allowance for at least the same reasons.

With further respect to claim 17, Hasak does not teach or suggest the use of a DC-to-DC converter on a blade that is enabled by an enable signal received over a third

pin/socket from the backplane bus. As discussed above, *Husak* teaches away from the use of DC-to-DC converters. With further respect to claim 18, Hasak does not teach or suggest the use of a DC-to-DC converter enable signal that originates from one of the management blades. *Husak* does not use either enable signals or management blades, or use an enable signal to enable a power supply. In fact, *Husak* does not supply power to the sub-assemblies in response to any signals at all – once the short pins in *Husak* are connected, the sub-assemblies are supplied with power, regardless of any other condition. With further respect to claim 19, Hasak does not teach or suggest providing a signal from another blade to at least one of the management blades indicating the status of its DC power. With further respect to claim 22, *Husak* does not teach or suggest the use of an additional bus connecting the management blades. *Husak* only discloses the use of a (single) VME bus, and discusses possible uses of other types of busses. Again, *Husak* does not use management blades. With further respect to claim 23, *Husak* does not teach or suggest the use signals to indicate the health of the management blades that are communicated over the additional bus.

As discussed above, each of claims 30 and 31 recite subject matter that would be allowed if rewritten in independent form including the limitations of their base claim and any intervening claims. The Applicant reserves the opportunity to do so, but has not chosen to amend claim 30 or 31 is this response.

Conclusion

Overall, none of the cited art does not disclose, teach, or suggest what is recited in the independent claims 1 and 13. Thus, independent claims 1 and 13 are in condition for allowance. The dependent claims that depend directly or indirectly on these independent claims are likewise allowable based on at least the same reasons and based on the recitations contained in each dependent claim.

If the undersigned attorney has overlooked a teaching in any of the cited references that is relevant to the allowability of the claims, the Examiner is requested to specifically point out where such teaching may be found. Further, if there are any informalities or questions that can be addressed via telephone, the Examiner is encouraged to contact the undersigned attorney at (206) 292-8600.

*Charge Deposit Account*

Please charge our Deposit Account No. 02-2666 for any additional fee(s) that may be due in this matter, and please credit the same deposit account for any overpayment.

Respectfully submitted,

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MARKED-UP VERSION OF THE AMENDED CLAIMS

22. (Amended) The system defined by claim 21 including [and] an additional bus connecting to the MBs.

25. (Amended) The blade of claim 1, wherein the circuitry includes a processor, and the connector includes a reset pin/socket by which a reset signal may be received to reset the processor.



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